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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,443	11/25/2003	Hubertus M.J.M. Boesten	0142-0439P	4538
2292 7590 12/28/2007 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			EXAMINER ZHENG, JACKY X	
			ART UNIT 2625	PAPER NUMBER
			NOTIFICATION DATE 12/28/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary

Application No.

10/720,443

Applicant(s)

BOESTEN ET AL.

Examiner

Jacky X. Zheng

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on November 25, 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to applicant's amendments and remarks filed on October 17, 2007.
2. **Claims 1, 3-6, 8-10, 12 and 18** have been amended.
3. **Claims 1-19** are currently pending.
4. The objection to "ABSTRACT" is withdrawn in view of Applicant's amendment.
5. The objections to "SPECIFICATION" are withdrawn in view of Applicant's amendment.
6. The objection to "TITILE" is withdrawn in view of Applicant's amendment with a new title.
7. The objections to Claims 1, 4, 6, 9, 10, 12 and 18 are withdrawn in view of Applicant's amendments and/or cancellation to the claims.
8. The rejections under 35 U.S.C. §112, Second Paragraph, to Claims 1-9 are withdrawn in view of Applicant's amendments and/or remarks with respect to the claims.

Response to Arguments

9. Applicant's arguments filed on October 17, 2007 have been fully considered but they are not persuasive.
10. In re Applicant's remarks from Page 9, 3rd Paragraph to Page 10, 1st Paragraph, with regard to the rejection under 35 U.S.C. §103(a) regarding Claims 1-19, Applicant asserts that "Bares reference does not disclose forming a cumulative histogram and determining from said histogram whether the image is a monochrome image or a color image". Applicant's argument(s) are fully considered, however found to be not persuasive for at least the following reasons.

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a. First, Examiner agrees that Bares does not explicitly disclose the step of forming the "a cumulative histogram". However, in consideration of the entire disclosure and teachings of Bares, and particularly the following citations (but not limited to), in "Summary of Invention", Paragraph [0009], "...with another aspect of invention, the pixels are classified by determining a count of the reduced image pixels having values above a color threshold and classifying the image as one of color and neutral (or monochrome) as a function of the count", in addition to the other teachings (but limited to) of Bares, such as: Bares discloses an invention relates to classifying an image as a color or neutral (monochrome or black/white) image by observing the respective values associated with the pixels in the image; first, Bares discloses a limitation of usage of "neutral axis" (or "L* axis" or "gray axis") in the disclosure (*i.e. as illustrated in Figure 1, Part 22*); Bares further discloses the limitations of process of "Determine Distances" (*i.e. Figure 2, Step 84 & Paragraph [0032]*), process of "Determine Count" and compare the value the to the predetermined threshold range (*i.e. Figure 2, Step 86 & Paragraph [0033]*), and the process of "Classify" (*i.e. Figure 2, Step 90 & Paragraph [0034]*) for classifying the image data to be either color or neutral (monochrome); and also discloses the limitation of transforming the image data in one color space to another, such as from RGB color space to a L*a*b* color space (*i.e. Figure 2, Step 70*). A histogram, which is commonly known and practiced by one of ordinary skill in the art in area of image processing, as a representation of the distribution of colors in an image, which can be simply done (but not only) by counting the number of pixel that will satisfy the specific preset conditions (or simply a predetermined threshold or range) and generate a visual

representation generally in form of graphs. So, in considerations of explicit disclosure from Bares that the pixels in the images can be classified as one of color and neutral (or monochrome) as a function of the count and the explicit and *substantially-identical* steps recited in Figure 2 of Bares, and well-know method of using a histogram for image or pixel classification, Examiner submits that it would *still* be obvious for one of ordinary skill in the art to comprehend and implement based on explicit limitation disclosed by Bares "classifying the image as one of color and neutral as a function of count" in a form of histogram, even if there is no explicit and direct disclosing of such a limitation.

b. Second, for purposes of advancing the prosecution and further illustration of the abovementioned point of utilization of "a histogram" is being conventional and well-known in the art, a prior art among the many others previously cited in the section of "Conclusion" of the first action on the merit mailed on July 17, 2007, U.S. Patent No. 5,786,906 (hereinafter as "Shishizuka", filed in 1994 and patented in 1998), drawn to an invention of color or monochrome judgment of input image, will be used herein for purpose of discussion only (which is also herein indicated by Examiner, citing of Shishizuka is not for intending of a new ground, instead, a purpose of discussion in view of advancing the prosecution). Shishizuka, among the many others, drawn to a method and apparatus to provide a function of judging whether an image (or pixels in the image) is color or monochrome. Figure 17 in Shishizuka, *inter alia*, clearly disclose the limitation of performing a "Count Histogram" in Step S405, to be a part of judging

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processing of whether an image is color or monochrome, and further perform corresponding processes.

Therefore, for at least the reasons set forth above, Examiner submits the claims are remained unpatentable over the prior arts of records, and the rejection made under 35 U.S.C. §103(a) over Bares and Smilansky with regard to claims 1-19 is remained proper and therefore maintained.

11. In re Applicant's remarks on Page 10, 2nd – 3rd Paragraphs, with regard to citing of prior art, Smilansky, Applicant asserts that "there is no suggestion or indication to combine" Smilansky with base reference, Bares. Applicant's argument(s) are fully considered, however found to be not persuasive for at least the following reasons.

a. Without acquiesce to Applicant's assertion, Examiner further clarify that Smilansky was solely relied on with respect to the limitation of "applying a linear regression analysis" and/or corresponding related limitations.

b. In addition, assuming *arguendo*, that the two prior arts of record are not combinable, either a limitation, applying or using of "linear regression analysis" would be well-known and conventional in field of Mathematical Statistics, and also to one of ordinary skill in the art. The earliest form of linear regression, was done by method of least squares, which can at least dated back to 1805 by a French mathematician, Adrien-Marie Legendre (also, for purpose of brevity, discussion over the prior art for illustration of conventionality will not be shown, however it will be available upon request).

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Therefore, for at least the reasons set forth above, the rejection made under 35 U.S.C. §103(a) over the prior arts of record with regard to claims 1-19 is remained proper and therefore maintained.

(The grounds of rejection and/or objection are maintained for at least the responses set forth above, reasons of record set forth previously, and also replicated and provided in below.)

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. **Claims 1-19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Bares (U.S. Pub. No 2002/0075491) and further in view of Smilansky (U.S. Pub. No. 2002/0102013).

With regard to claims 1-9, the claims are drawn to an image processing method. Bares discloses an invention relates to classifying an image as a color or neutral (monochrome or black/white) image by observing the respective values associated with the pixels in the image. First, Bares discloses a limitation of usage of “neutral axis” (or L* axis) in the disclosure (*i.e. as illustrated in Figure 1, Part 22*). Bares further discloses the limitations of process of “Determine Distances” (*i.e. Figure 2, Step 84 & Paragraph [0032]*), process of “Determine Count” and compare the value the to the predetermined threshold range (*i.e. Figure 2, Step 86 & Paragraph [0033]*), and the process of “Classify” (*i.e. Figure 2, Step 90 & Paragraph [0034]*) for

classifying the image data to be either color or neutral (monochrome). In addition, Bares also disclose the limitation of transforming the image data in one color space to another, such as from RGB color space to a $L^*a^*b^*$ color space (*i.e. Figure 2, Step 70*).

Bares does not *explicitly* disclose the limitations of applying a linear regression analysis to the pixels as recited in claims 3 and 4, further utilize at least one of the regression parameters as recited in claim 5, and further perform judgment based on whether a existence of linear relationship produced by the image data as recited claims 8 and 9.

However, Smilansky discloses an invention relates to a method and system of comparing first and second signal arrays (signal arrays disclosed to be possibly the pixels in the digital image, *i.e. Paragraph [0004]*) utilizing a linear regression analysis and produce a slope (*i.e. Figures 1 & 4, Paragraph [0006], claim 1 and etc.*).

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to have modified Bares to include the limitations of applying a linear regression analysis to the pixels, further utilize at least one of the regression parameters, and further perform judgment based on whether a existence of linear relationship produced by the image data taught by Smilansky. It would have been obvious to one of ordinary skill in the art at the time of invention to have modified Bares by the teachings of Smilansky to include the limitations of applying a linear regression analysis to the pixels, further utilize at least one of the regression parameters, and further perform judgment based on whether a existence of linear relationship produced by the image data taught by Smilansky in the location mentioned above, in order to obtain a statistical result with better accuracy.

With regard to claims 10-18, the claims are drawn to an image processing system having the *substantially* identical limitations recited in claims 1-9 discussed above. In details, claims 10-18 are drawn to an image processing system having the *substantially* identical limitations recited in claims 1, 3, 6, 2, 4, 5, 7, 8 and 9 *respectively*. *(The system claims are rejected under the same ground for at least the reasons set forth above in the method claims. See the detailed discussion of the claims 1-10 above).*

With regard to claim 19, the claim is drawn to the system as recited in claim 10, further comprising a scanner for scanning the original image. Bares discloses the limitation of inputting image data, such as by scanning the original to obtain the digitized data (*i.e. Figure 2, Step 56; Paragraph [0027]*).

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- A. Handley et al. (U.S. Patent No. 7,116,443) disclose a method of neutral pixel (black/white pixel) detection using color space feature vectors.
- B. Shishizuka et al. (U.S. Patent No. 5,786,906) disclose a method and apparatus capable of automatically judging whether an input image is a color or monochrome image.
- C. Bares et al. (U.S. Patent No. 6,972,866) disclose a method of classifying a neutral or non-neutral category of the inputted pixel groups.

- D. Van Hall et al. (U.S. Pub. No. 2004/0042664) disclose a method and computer program product for recognizing italicized text, specifically disclose the limitation of subjecting the pixel in the histogram for a linear regression analysis.
- E. Nakamura et al. (U.S. Pub. No. 2001/0051001) disclose a picture-processing method and apparatus, and specifically disclose the limitation of “gray axis”.
- F. Takaragi et al. (U.S. Patent No. 5,721,628) disclose a color image processing apparatus which judges a saturation of an input color image and perform image processing in accordance with the saturation judgment results.
- G. Kanno et al. (U.S. Patent No. 6,504,628) disclose a color image-forming apparatus capable of discriminating the color of the original images.
- H. Fan et al. (U.S. Patent No. 6,249,592) disclose a method of neutral color detection for use in copiers and scanners.
- I. Funada et al. (U.S. Patent No. 5,722,440) disclose an image processing apparatus includes a judgment circuit for judging whether an input image is a monochrome or a color image.
- J. Kawano et al. (U.S. Patent no. 6,240,203) disclose an image discriminating apparatus for discriminating the type of image accurately.
- K. Gindele et al. (U.S. Pub. No. 2003/0215133) disclose an invention relates to color transformation for processing digital images, specifically disclose the usages of “linear regression analysis”.
- L. Zhou (U.S. Patent No. 6,898,316) discloses a multiple image area detection method in a digital image.

15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

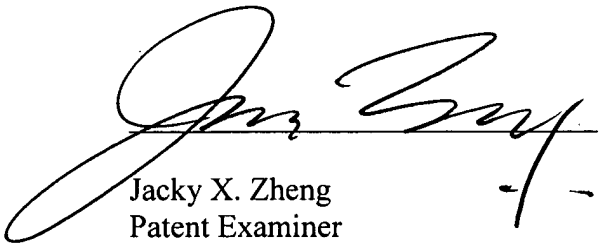
16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacky X. Zheng whose telephone number is (571) 270-1122. The examiner can *normally* be reached on Monday-Friday, 7:30 a.m.-5p.m., Alt. Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Twyler M. Lamb can be reached on (571) 272-7406. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

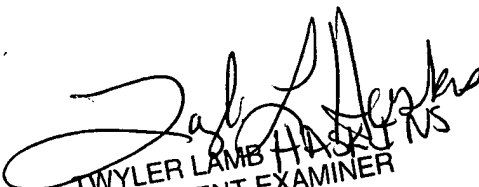
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR

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system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Jacky X. Zheng
Patent Examiner
Art Unit: 2625
December 19, 2007



TWYLER LAMB HASKINS
SUPERVISORY PATENT EXAMINER